EE314 Digital Electronics Laboratory 2017-2018 Spring Term Project Proposal Report

1st Halil TEMURTAS *2094522* *halil.temurtas@metu.edu.tr*
2nd Erdem TUNA *2167419* *erdem.tuna@metu.edu.tr*

***Abstract*—The project**

***Index Terms*—The, laboratory , project**

I. Introduction

In this project, our aim is to design a oscilloscope.

II. Project

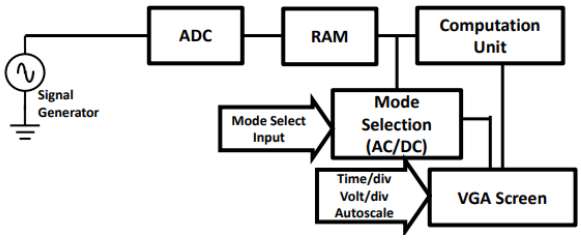

Figure 1: The Block Diagram of the project

Figure 1

A. ADC

B. RAM

C. Computation Unit

D. Mode Selection (AC/DC)

Two slide switches will be assigned to retrieve the desired mode information from the user. According to the information the screen will display according to the desired mode.

a) AC Mode

In AC Mode operation of the oscilloscope, the DC offset voltage is removed from the input voltage before it is reflected to the VGA monitor. For that Computation Unit will be used to extract offset information from stored data.

b) DC Mode

In DC Mode operation of the oscilloscope, the DC offset voltage is untouched from the stored data of the input voltage. The stored data is reflected directly to the VGA monitor.

E. VGA Screen

Time/div Input

Voltage/div Input

Autoscale Input

VGA Controller

The VGA controller combines the numbers BRAM, the delta-t BRAM and the waveform to create a signal that is displayed on the computer monitor. Each of the BRAMs contains an image that is ready for display on the screen, but they must be positioned relative to each other and combined. The VGA controller also provides read/write timing for other modules. Since the BRAMs must be read 60 times per second, the VGA controller needs to send out a signal (write warning) to warn the decimal module and the menu FSM not to write when it is reading. The VGA controller also produces a select signal that controls which waveform BRAM is being written to/read from.

III. Conclusion

Conclusion

References

[1] J.-J. Lin, Y.-P. Li, W.-C. Hsu, and T.-S. Lee, "Design of an FMCW radar baseband signal processing system for automotive application," SpringerPlus, vol. 5, no. 1, 2016.